

# AC-10 Portable Current Density Coupon

Simple to Use | Durable | AC Current Density Readings

## Induced AC

Induced AC on pipelines is a potential shock hazard and a source of corrosion damage. The electromagnetic fields associated with high-power AC transmission lines can cause unwanted voltage to 'appear' on a pipeline or structure close to energized power lines.

## Monitoring Induced AC

Monitoring current density (in addition to AC voltages) is a key factor in assessing the AC current-related corrosion risk. A simple and effective method of determining AC current density is to install permanent steel coupons along the pipeline, where current density readings are taken through a current measurement shunt or meter. Yet, permanent steel coupons can be costly when considering materials, planning, permitting, mobilization, equipment and labor.

## A New Solution

The Farwest AC-10 is an efficient way to measure AC current density, on demand, during a normal pipeline corrosion survey. Similar to a soil pin, the AC-10 is driven into the soil and functions like a permanent AC current density coupon. The portability and simplicity allow CP technicians to measure AC current density along a pipeline where permanent coupons do not exist.



## Advantages & Features

- Simple to use
- Obtain AC current density readings within seconds
- Durable steel construction
- Multiple cable connection options
- Replaceable 10cm<sup>2</sup> conical tip for soil contact
- Cost Effective

## Operation

- The AC-10 conical tip must be in good contact with the soil to obtain an accurate measurement
- The coupon is provided with a hardened-steel driving pin for creating a "pilot hole" in hard soil
- Current density measurement is taken via a digital multimeter (DMM) and wire connection to the AC-10 coupon and the pipeline
- The conversion from AC milliamps (mA) to AC Amperes/Meter<sup>2</sup> is a direct numeric conversion

*Please note: The AC-10 Portable Current Density Coupon is designed to provide approximate readings for general guidance. Permanently installed coupons may yield more accurate data.*



Find more information about the  
**Farwest AC-10 Portable Current Density Coupon**  
at [FarwestCorrosion.com](http://FarwestCorrosion.com) or call Farwest and order yours today!





# AC-10 Portable Current Density Coupon



Part Number	04-32150
Equipment Provided	<ul style="list-style-type: none"><li>• 1 - AC-10 drivable coupon with conical tip with conical tip and cable connection points</li><li>• 1 - Spare 10cm<sup>2</sup> conical tip</li><li>• Hardened steel drive-pin</li></ul>
Warranty	1-year against defects in materials and workmanship
Instructions	Included

## EVALUATING THE PROBABILITY OF INDUCED AC AND WHY

AC can cause corrosion on cathodically protected steel structures. The corrosion that can occur from induced AC is not necessarily proportional to the induced voltage. Knowing the magnitude of the induced AC current density is a key factor in evaluating the probability of induced AC corrosion.

## Why Worry About Induced AC

- Induced voltages can present a shock hazard to technicians and others who physically touch the structure or metallic devices connected to the structure.
- AC is known to be the direct cause of soil-side corrosion on buried and submerged structures in a similar manner to DC corrosion.

AC corrosion is similar to DC corrosion in that the AC discharges at the coating flaws (holidays). The better the coating yields smaller areas of bare metal in contact with the earth, which results in higher current densities per unit area of the steel structure. Other contributing factors to the AC corrosion rate include low soil resistivity, porosity and geometric factors in the interface between the soil and the coating holiday.

AMPP publication 35110 indicates the effects AC current density levels can have on the corrosion rates of buried steel structures as follows:

- Less than 20 A/m<sup>2</sup> = No induced AC corrosion issues.
- Greater than 20 A/m<sup>2</sup> but less than 100 A/m<sup>2</sup> = Corrosion is unpredictable and influenced by many environmental factors.
- Greater than 100 A/m<sup>2</sup> = AC corrosion is likely to occur on the structure.

Subsequent research has demonstrated that AC current densities as low as 20 A/m<sup>2</sup> can result in corrosion (reference AMPP publication #04206) and has shown that at low AC current densities, a higher CP polarization level will continually reduce the effect of AC corrosion on test coupons.

Additionally, reducing the AC voltage potential to 15 volts or lower (recommended by AMPP and OSHA) for safety reasons is not necessarily sufficient to mitigate AC corrosion on the structure.

## About Farwest Corrosion Control

Farwest Corrosion Control is an industry pioneer and leader in comprehensive cathodic protection and corrosion control products, services and solutions to protect critical infrastructure in the gas, oil, water, wastewater, power, marine and construction industries. Services include product distribution and fabrication, turn-key system installation, engineering design and technical field services. With the largest inventory nationwide, Farwest can provide same-day shipping and one-to-three-day delivery to most areas in the US.

Founded in 1956, the firm is a Minority Business Enterprise headquartered in Downey, CA with offices and representation nationwide and is known for its outstanding reputation, quality work, technical expertise and customer trust.

**Secure AC Readings in Seconds.**

**Order Your Farwest AC-10 Portable Current Density Coupon Today!**

Farwest Corrosion Control

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Rev.10/24

